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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,145	01/28/2004	Eun Hye Choi	248156US2RD	9722

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EXAMINER
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LE, MIRANDA

ART UNIT	PAPER NUMBER
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2167

DATE MAILED: 08/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/765,145

Applicant(s)

CHOI ET AL.

Examiner

Miranda Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 01/28/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Information Disclosure Statement***

1. Applicants' Information Disclosure Statement, filed 01/28/04, has been received, entered into the record, and considered. See attached form PTO-1449.

***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 20 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 20 defines a non-statutory process since the computer programs claimed as computer code per se, i.e., the descriptions or expressions of the programs, are not physical "things". They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. It is suggested that the claimed computer program product should be read as "A computer program product which employs a storage medium...".

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless:

(e) the invention was described in

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Iline et al. (US Pub. No. 20040068491).

Iline anticipated independent claims 1, 7, 8, 14, 15, 21, 22, 26, 29, 34-36 by the following:

As to claims 1, 19, 20, Iline teaches a concurrency control method in a transaction processing system for processing a plurality of transactions in parallel (*i.e. reader-writer pair, [0028]*) with respect to hierarchical data (*i.e. XML, [0039, 0052]*) the concurrency control method comprising:

producing a copy (*i.e. a first data is written to a first data store by the first writer node, [0046], Fig. 6*) of the hierarchical data at a time of starting an access to the hierarchical data by each transaction (*[0011-0016; 0041-0049]*);

judging (*i.e. interface TestResultReader, interface TestResultWriter, as shown in Code Listing A, [0044-0049]*) whether a collision between one of reading access (*i.e. data is read by the first reader node, [0047], Fig. 6*) or writing access to be made by a first transaction with respect to a copy of the hierarchical data for the first transaction and another one of reading access (*i.e. second reader, [0047]*) or writing access (*i.e. second writer, [0047]*) made by the

second transaction with respect to a copy of the hierarchical data for the second transaction will occur or not ([0011-0016; 0041-0049]);

carrying out a processing (*i.e. formatter may read data from a data store [0052]*) for avoiding the collision when the judging step judges that the collision will occur ([0047-0053]);  
*and*

reflecting a writing access made by the first transaction with respect to a copy of the hierarchical data for the first transaction (*i.e. a first data is written to a first data store by the first writer node, [0046], Fig. 6*), on the hierarchical data, when the first transaction is to be finished normally (*i.e. Once the first reader node is accessed, data is read from the first data store, [0046-0047]*) and reflecting the writing access also on a copy of the hierarchical data for the second transaction if the second transaction is not finished yet (*i.e. the second writer node is prevented from writing data to the first data store (Step 176), [0048]*) (0026-0036; 0039-0042; 0044-0053)).

**As per claim 2**, Iline teaches the concurrency control method of claim 1, wherein the judging step whether the collision will occur or not, according to whether data looked up by making the reading access without taking the writing access into consideration and data looked up by making the reading access by taking the writing access into consideration are identical or not (0026-0036; 0039-0042; 0044-0053)).

**As per claim 3**, Iline teaches the concurrency control method of claim 1, wherein when the first transaction is to make the reading access with respect to a copy of the hierarchical data,

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the judging step judges whether the collision will occur or not according to whether first data looked up by making the reading access with respect to a copy of the hierarchical data for the first transaction and second data looked up by making the reading access with respect to data obtained by merging a copy of the hierarchical data for the first transaction and a copy of the hierarchical data for the second transaction are identical or not ([0039-0042; 0044-0053]).

**As per claim 4**, Iline teaches the concurrency control method of claim 3, wherein the judging step judges that the collision will not occur when the first data and the second data are judged as identical for all transactions that can be the second transaction, and judges that the collision will occur otherwise ([0039-0042; 0044-0053]).

**As per claim 5**, Iline teaches the concurrency control method of claim 1, further comprising: making the writing access with respect to a shared copy produced by copying the hierarchical data in order to reflect writing accesses made by all transactions that make accesses to the hierarchical data, when the first transaction is to make the writing access with respect to a copy of the hierarchical data (0026-0036; 0039-0042; 0044-0053);

wherein when the first transaction is to make the reading access with respect to a copy of the hierarchical data, the judging step judges whether the collision will occur or not according to whether first data looked up by making the reading access and second data looked up by making the reading access with respect to the shared copy of the hierarchical data are identical or not ([0039-0042; 0044-0053]).

**As per claim 6**, Iline teaches the concurrency control method of claim 5, wherein the judging step judges that the collision will not occur when the first data and the second data are judged as identical, and judges that the collision will occur when the first data and the second data are judged as not identical ([0039-0042; 0044-0053]).

**As per claim 7**, Iline teaches the concurrency control method of claim 5, wherein when there is an upper limit to a number of shared copies that can be recorded, those shared copies which have a higher possibility of being utilized at a time of reproducing a state in which the reading access is to be made later on are recorded at a higher priority, among the shared copies corresponding to states at times of the writing accesses with respect to the hierarchical data ([0039-0042; 0044-0053]).

**As per claim 8**, Iline teaches the concurrency control method of claim 1, wherein when the first transaction is to make the writing access with respect to a copy of the hierarchical data, the judging step judges whether the collision will occur or not according to whether first data looked up by making the reading access of the second transaction and second data looked up by making the reading access of the second transaction with respect to a state of the hierarchical data after the writing access are identical or not, for all reading accesses by all transactions that make accesses to the hierarchical data and that can be the second transaction ([0039-0042; 0044-0053]).

**As per claim 9**, Iline teaches the concurrency control method of claim 8, wherein the

judging step judges that the collision will not occur when the first data and the second data are judged as identical for all reading accesses of all transactions that make accesses to the hierarchical data and that can be the second transaction, and judges that the collision will occur otherwise ([0039-0042; 0044-0053]).

**As per claim 10**, Iline teaches the concurrency control method of claim 8, further comprising: recording an access sequence of accesses made with respect to a copy of the hierarchical data by each transaction, for each one of all transactions that make accesses to the hierarchical data; wherein the judging step obtains all reading accesses of all transactions that make accesses to the hierarchical data and that can be the second transaction, by looking up a record of the access sequence ([0039-0042; 0044-0053]).

**As per claim 11**, Iline teaches the concurrency control method of claim 8, further comprising: recording data looked up by making the reading accesses; wherein the judging step obtains the first data by looking up a record of the data looked up ([0039-0042; 0044-0053]).

**As per claim 12**, Iline teaches the concurrency control method of claim 8, wherein the judging step obtains the first data as data obtained by making the writing access that was made by the second transaction before the reading access, with respect to a state of the hierarchical data at a start of the second transaction, and then making the reading access with respect to a state of the hierarchical data after the writing access ([0039-0042; 0044-0053]).



**As per claim 13**, Iline teaches the concurrency control method of claim 8, further comprising: making the writing access with respect to a shared copy produced by copying the hierarchical data in order to reflect writing accesses made by all transactions that make accesses to the hierarchical data, when the first transaction is to make the writing access with respect to a copy of the hierarchical data (0026-0036; 0039-0042; 0044-0053]); and

storing states of the shared copy at timings at which the writing accesses were made by some of the transactions that make accesses to the hierarchical data (0026-0036; 0039-0042; 0044-0053]);

wherein the judging step obtains the first data as data obtained by reproducing a state of the hierarchical data at a timing at which the reading access was made by selecting one of stored states of the shared copy which is close to the state of the hierarchical data at a timing at which the reading access was made and making the writing access that was made by the second transaction with respect to a selected state of the shared copy according to need, and then making the reading access with respect to a reproduced state of the hierarchical data (0026-0036; 0039-0042; 0044-0053]).

**As per claim 14**, Iline teaches the concurrency control method of claim 13, wherein when there is an upper limit to a number of shared copies that can be recorded, those shared copies which have a higher possibility of being utilized at a time of reproducing a state in which the reading access is to be made later on are recorded at a higher priority, among the shared copies corresponding to states at times of the writing accesses with respect to the hierarchical data (0026-0036; 0039-0042; 0044-0053]).

**As per claim 15**, Iline teaches the concurrency control method of claim 8, wherein the judging step obtains the second data as data obtained by making the writing access of the second transaction with respect to a state after the writing access was made with respect to a copy of the hierarchical data for the first transaction, and then making the reading access with respect to a state of the hierarchical data after the writing access of the second transaction (*0039-0042; 0044-0053*)).

**As per claim 16**, Iline teaches the concurrency control method of claim 8, further comprising: making the writing access with respect to a shared copy produced by copying the hierarchical data in order to reflect writing accesses made by all transactions that make accesses to the hierarchical data, when the first transaction is to make the writing access with respect to a copy of the hierarchical data (*0026-0036; 0039-0042; 0044-0053*)); and

storing states of the shared copy at timings at which the writing accesses were made by some of the transactions that make accesses to the hierarchical data (*0026-0036; 0039-0042; 0044-0053*));

wherein the judging step obtains the second data as data obtained by reproducing a state of the hierarchical data at a timing at which the reading access is to be made by selecting one of stored states of the shared copy which is close to the state of the hierarchical data at a timing at which the reading access is to be made, making the writing access that was made by the first transaction after that timing, with respect to a selected state of the shared copy, and making the writing access that was made by the second transaction according to need, and then making the

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reading access with respect to a reproduced state of the hierarchical data (0026-0036; 0039-0042; 0044-0053]).

**As per claim 17**, Iline teaches the concurrency control method of claim 16, wherein when there is an upper limit to a number of shared copies that can be recorded, those shared copies which have a higher possibility of being utilized at a time of reproducing a state in which the reading access is to be made later on are recorded at a higher priority, among the shared copies corresponding to states at times of the writing accesses with respect to the hierarchical data (0026-0036; 0039-0042; 0044-0053]).

**As per claim 18**, Iline teaches the concurrency control method of claim 1, wherein when the judging step judges that the collision will occur, the carrying out step carries out the processing for keeping those transactions that are determined according to prescribed criteria among transactions related to the collision, to wait until other transactions related to the collision are finished (0026-0036; 0039-0042; 0044-0053]).

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*Conclusion*

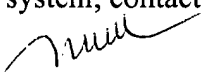
6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Miranda Le whose telephone number is (571) 272-4112. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Cottingham, can be reached on (571) 272-7079. The fax number to this Art Unit is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Miranda Le  
August 09, 2006

  
JOHN COTTINGHAM  
SUPERVISORY PATENT EXAMINER  
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